

TRANSACTIONS

OF THE

PHILADELPHIA ACADEMY OF SURGERY.

Stated Meeting, February 1, 1904.

The President, HENRY R. WHARTON, M.D., in the Chair.

FRACTURE OF THE PATELLA TREATED BY SUTURING.

DR. JOHN H. GIBBON exhibited three patients in whom suture of a fractured patella had been done, and reported the facts of a fourth similar case. These operations had been done during the past two and a half years.

So satisfactory have the results been in these cases, that he thought it worth while to present the patients for examination. An inspection of the patella and examination of the function of the knee-joint in each of these cases will show a practically normal condition, and he is convinced that certainly in these individual cases no such result could have been obtained by any other than the open treatment. Operation was resorted to either because of non-union after other forms of treatment, or because of the impossibility of thoroughly approximating the fragments by any other method. That there has been a firm, bony union which has withstood the ordinary avocations is easily demonstrated, and consequently he thinks that there is absolutely no danger of re-fracture, which is not true when the union is fibrous, as it is in the large majority of the cases treated by other methods. Not one of these four patients is limited in any way by his injury. One of them is a paper-hanger, who does most of his work on a step-ladder. One patient was over sixty years of age at the time of operation, although the operation in his case was done because of non-union after four weeks of fixation.

The primary results were better in these cases than is usual

in those treated by non-operative methods; that is to say, the patients were out of bed earlier and were earlier allowed to discard splints or any other form of restraint. He believes that in bad cases of fracture of the patella in which suturing is done, the results will compare favorably with those obtained in the simplest case treated by splints and other forms of apparatus. He was of course not prepared to recommend operation in every case of fracture of the patella, and yet believes that the ultimate results will be better in every case treated in this way. One should not for a moment lose sight of the fact that the operation is accompanied by one great risk, namely, that of sepsis; and yet, if surgeons will exercise the same precautions as to cleanliness and technique in these cases that they do in abdominal cases, this risk will amount to practically very little. An occasional bad result may be obtained, but the results in the large majority of cases will be far better. His plan in the past has been only to operate upon complicated cases, those in which it was practically certain that a satisfactory approximation of the fragments was out of the question, and those in which non-union had taken place. He will, however, in the future reduce the restrictions on operative treatment and increase the indications for it. His experience has been, and he is sure that it will be confirmed by that of others, that whenever the patella is exposed in these cases there is always some material between the fragments, usually portions of the ligament, which will prevent the establishment of bony union.

Regarding the technique of the operation, there has already been an enormous amount of discussion. Personally, he believes that the U-shaped incision gives the surgeon a better opportunity to thoroughly cleanse the parts and to approximate not only the fragments of the patella, but also all the torn ligamentous tissue than do the straight or transverse incisions. Through this incision the parts are thoroughly exposed, the joint easily cleared of clots, and the torn lateral ligaments readily sutured. It presents another advantage in that in case drainage is desired it can be obtained at the sides of the patella, the space in which accumulations are most likely to take place. In all his own cases he has inserted a small gauze drain on each side of the patella, and in none of them has there been any suppuration or accumulation of fluid in the joint. These drains of course are removed within a few days. With the longitudinal incision such drainage is practically impos-

sible. In making the U-shaped incision the transverse portion of it should be one-half or three-quarters of an inch below the line of fracture. This incision he has also employed with the greatest satisfaction in excision of the prepatella bursa, in which cases it is often difficult to thoroughly remove the bursa through a longitudinal incision. In but one of the cases which he showed was a non-absorbable suture employed, and in none of them was the suture allowed to emerge upon the articulating surface of the patella. Dr. Gibbon does not think that wire is necessary for the repair of this fracture, and believes, moreover, that in a large number of cases the fragments may be held in absolute apposition by a careful suturing of the torn ligament about the bone. There is no likelihood of a large chromicized-gut suture passed through the fragments giving way if it is properly tied, if the ligament over it is sutured, and the quadriceps extensor relaxed by elevation of the leg. There is no lateral shifting of the fragments after operation, as sometimes takes place in long bones, and which is apt to break even a silver suture. The only condition after operation which gives rise to inconvenience and requires treatment is swelling, and this is no greater than in those cases in which other methods of treatment are employed. In the majority of cases the splint can be removed in from four to six weeks and the patient allowed to exercise the part. Massage after the wound is thoroughly healed does much to prevent subsequent swelling and stiffening of the muscles and joint, and should always constitute a part of the treatment. With this idea in view he prefers to dress these cases upon a posterior splint which is easily removed, rather than with a plaster bandage; although, if the latter is cut so that it can be removed and satisfactorily replaced, it serves the same purpose. He thinks, also, that elevation of the leg for the purpose of relaxing the quadriceps muscle should be insisted upon during the first two or three weeks.

The first case shown was that of a colored man, fifty-two years of age, operated upon at the Pennsylvania Hospital on the day of his admission, August 5, 1901. The reason for operating in this case was an enormous distention of the joint with blood. The fragments were exposed by a straight incision and approximated with a silver-wire suture. He was discharged on September 20, 1901. This patient was seen a number of months after the operation, when he had perfect use of the leg; but it has

been impossible to discover his present whereabouts, although a careful search has been made.

The second case was that of a man sixty years of age who was operated upon four weeks after his admission to the Pennsylvania Hospital. Operation in this case was done because there was absolutely no union after fixation upon a splint for more than four weeks. The operation was done on October 1, 1902, and the patient discharged on December 31, 1902. The line of fracture was near the tip of the patella. The bone was exposed through a U-shaped incision, the fragments and ligaments surrounding it sutured with chromicized gut. The result in this case is all that could be desired, the patient having no inconvenience and practically no limitation of flexion.

The third case was that of a man twenty-eight years of age operated upon at the Polyclinic Hospital on December 16, 1902, four days after admission. In this case the operation was done because it was found impossible to approximate the fragments. The U-shaped incision was employed and the fragments and ligament sutured with chromicized gut. This case presented a beautiful illustration of interference with approximation due to the interposition of ligamentous tissue. The patient was discharged on January 2, 1903, sixteen days after operation. There was some subsequent swelling, more than in any of the others; and it is thought that it was probably due to the fact that the patient was allowed to get out of bed and leave the hospital too soon after operation. The ultimate result, however, as is shown, is a practically normal knee-joint. The patient is a paper-hanger, doing most of his work on a step-ladder.

The fourth case was that of a man thirty-four years of age who was operated upon at the Pennsylvania Hospital on October 10, 1903, two days after his admission. There was considerable swelling in this case, and approximation of the fragments was impossible. The two modes of treatment were explained to the patient, and he elected the operative. The patella was exposed through a U-shaped incision and found to be fractured transversely near its lower extremity, and the lower portion of the bone was split longitudinally. The fragments were united with chromicized gut, which in the tying cut partially through the lower fragments. The ligament over the bone and at the sides was firmly sutured. The subsequent treatment was the same as

that in the other cases, and the result promises to be as satisfactory.

DR. RICHARD H. HARTE said that while the U-shaped incision had many advantages, he preferred the straight incision. With it the operator gains access to the fracture, and can also clean out the joint and suture the fragments of the patella without disturbing the tissues around the joint. The operative method is the rational way of treating fractures of the patella if the patient is a suitable one for undergoing an operation. The surgeon sees cases that are not suitable,—old people, alcoholics, etc. With these he must do the best he can with extension and counter-extension, posterior splints or other appliances. The trouble with cases treated in this way is that in a very large majority of instances there is not perfect apposition of the fragments, torn ligaments intervening, and thus preventing perfect union, either ligamentous or bony. For suture material Dr. Harte has used silver wire, which is usually too stiff to work easily. It can be made more pliable by heating and then plunging in water, but whenever used it is open to the objection that it is a foreign body, and in nine cases out of ten has to be removed. Some surgeons claim to have no trouble with it, but this has not been his experience. Chronicized catgut answered all purposes in the cases reported by Dr. Gibbon, and in future cases Dr. Harte will employ it instead of wire. The gut will of course not stand extreme tension, but as the only object of the suture is to put the fragments of bone in apposition, this is not a valid objection to its employment. As to the use of motion in cases of fractured patella, Dr. Harte has been conservative, and prefers to leave the leg in a plaster case for a long time. In some instances, if the support is removed in six weeks a refracture results, the newly-formed material not yet being solidified. When the fragments are put in apposition by operation good bony union should result. The bone breaks as does a bent lever with weight on both ends, and hence the necessity of firm union before use of the leg is allowed. Instead of taking off the splint in six weeks, he would prefer to leave it on for an additional three or four weeks. The cases of Dr. Gibbon, however, which were released earlier, show excellent results.

DR. WILLIAM L. RODMAN agreed with the previous speakers that operation is not advisable in all cases of fractured patella, yet an increasing number should be operated upon. In none of the

cases upon which he has operated could satisfactory union have occurred without such intervention, as there were large blood-clots in the joint, the fragments of the bone were tilted, or torn ligaments projected between them. In all favorable cases occurring in young people who lead an active life, and where the use of the limb is of great importance, the surgeon should explain the dangers of operation, for it is accompanied by certain dangers, and then, if the patient so elects, he is entitled to operation. Dr. Rodman has never used the U-shaped incision, employing instead the transverse or slightly eurved incision, practically that of Kocher. If holes are to be drilled in the fragments of bone, the transverse is better than the longitudinal incision. That the U-shaped incision increases the facility of drainage, as stated by Dr. Gibbon, he is ready to admit, but he has never employed drainage, and thinks it is not desirable in the majority of cases. In his last few cases he has obtained excellent results from the employment of Stimson's operation. Where the joint is thoroughly emptied, irrigated, and the limb elevated, as good results follow suturing of the fibroperiosteum alone as in cases where the bone is drilled and sutured. Drilling the fragments adds traumatism and increases the danger of infection. The question of suture material is an important one. In his earlier cases Dr. Rodman used silver wire, which in the first two remained without producing irritation or in any way causing trouble. In the third case one suture produced some pain, and later was removed under cocaine. He agreed with Dr. Harte that silver wire is not always a perfectly safe suture material, as it may cause pain, be extruded, or necessitate removal. Chronicized catgut may answer the purpose, but he prefers wire or silk, which are safely and quickly sterilized by boiling. Gut is uncertain. In his last cases he has employed the Pagenstecher or celluloid suture, and finds that it does well. In two cases it gave absolute satisfaction, and he will continue its use, suturing the fibroperiosteum instead of drilling the bone. In conclusion, Dr. Rodman said that he fully believed in the operative treatment for fractured patella in the vast majority of men under fifty years who lead an active life. In patients beyond fifty, especially if there is visceral disease, it is a dangerous operation. Furthermore, it is an operation that should never be performed outside of a thoroughly appointed hospital, and then only by a trained operator, with the aid of competent assist-

ants and nurses. Asepsis is here of the greatest importance. The subcutaneous operation of Barker is very dangerous, and if any operation is to be done it should be an open arthrotomy with thorough irrigation of the joint with sterile salt solution, no antiseptics being employed. Then drill and suture the bone or do the operation of Stimson.

DR. WILLIAM J. TAYLOR said that within the last two weeks he had operated upon a fractured patella in a woman, and found the joint full of blood-clots, with lacerated soft tissue between the fragments of the bone. An important point was that the lower fragment had become tilted in such a manner as to bring its articular surface in apposition with the fractured surface of the upper fragment, although externally reduction appeared to be complete. In cases of fractured patella in people who are actively employed in earning their living, operation should be done. Dr. Taylor has never yet regretted its employment, in every instance finding something interposed between the fragments that would have prevented union.

DR. WILLIAM G. PORTER said that examination, years after the receipt of the injury, of many cases of fractured patella not treated by operation will show that, while the anatomical result is not perfect, the function of the part is as good as before the injury. In some instances three or four fingers may be placed between the fragments, and yet the patients have good use of the leg. He believes that opening the joint in cases of fractured patella, unless under very exceptional circumstances, is not warranted.

DR. JOHN B. ROBERTS said that arthrotomy did not seem to be so desirable an operation as we ought to have for cases of fractured patella. If it is to be done only by the most experienced surgeons, in the best appointed hospitals, etc., it is evidently not the kind of an operation to be done in the majority of cases. He believes that while the majority of surgeons are competent to perform this operation, there is something better for the average surgeon in the average hospital with the average nurses in attendance. He has employed a simpler method with as good results and with less danger of sepsis and less necessity of perfect surroundings. This is the passing of a silk suture around the broken patella to act as a purse-string. It has been stated by several speakers that we must open the joint because clots and serum are present. If we open the joint in these cases we find the blood

and serum, but if we do not open it, nature cares for them by absorption, as she has been doing for years before the open operation was advocated. Dr. Roberts is not convinced that union will not occur even if there be fragments of periosteum between the bony surfaces after fracture. Every surgeon has seen that condition present in cases of comminuted fracture, and has seen that the periosteum did not hinder union, it being a tissue closely allied to bone. It is desirable to remove such portions of periosteum from between the fragments, and it can be done when operating without opening the joint. If the limb be elevated until flexion of the hip is secured, the tension of the rectus muscle attached to the patella will be relieved and the fragments may be approximated. If now the fragments be grasped firmly and rubbed together, the pieces of periosteum between them can be displaced. It may be noted in some of these cases that a dull, obscure crepitus at the beginning of the manipulation will be followed by a sharp, bony crepitus as the fragments of periosteum are crowded away. A long needle armed with silk, or catgut if preferred, is then used to encircle the patella with a suture through tendon and aponeurosis, four punctures being made. This can be done without opening the joint unless that be done occasionally by making a puncture deeper than it should be. This suture insures apposition of the parts whether the aponeurosis or the bone, or both, be torn or fractured; any one of which conditions may be present in an individual case. This method of coaptation is a simple procedure and does not invade the joint. Hence the absolutely perfect aseptic surroundings needed for open arthrotomy are not absolutely necessary here. The union of the bony fragments following this method may not always produce such anatomical smoothness of the patella as seen in the cases exhibited by Dr. Gibbon. A slight tilting may result, but satisfactory function has been secured in the cases thus treated by Dr. Roberts. One man is able to carry kegs of beer up and down stairs as well as before the fracture.

DR. GIBBON, in closing, said that the surgeon treating a case of fractured patella should bear in mind that he is dealing not only with a fractured bone but also with a fractured ligament. The lateral ligaments of the joint beyond the patella are practically always torn, there often being more bruising and tearing here than over the bone itself. With the U-shaped incision these areas can

be reached and the ligament repaired. By drainage in these cases he does not mean to drain under the patella, but only the points where the ligaments are sutured. He always feels safer with drains from those injured areas. As to the method of rubbing together the fragments of bone in order to liberate the ligaments, and passing a subcutaneous suture, as advocated by one of the speakers, entering the joint may be avoided, but he thinks there will be encountered as much risk of infection as though the joint were opened. Arthrotony is unquestionably an operation of gravity, but its successful performance is simply a question of aseptic habit. Dr. Porter's large experience in the treatment of fractured patellæ without operation is of great value, but he has seen stiff joints follow treatment by the old methods. Where there is separation of the fragments, the person may be able to do his work fairly well, but there is always the tendency to stumble, particularly when going upstairs. Refracture is also not uncommon in these cases. In answer to a question by Dr. Taylor, Dr. Gibbon said that he used a splint at first and plaster dressing later, if at all. A straight splint is applied, and the leg kept well elevated on pillows. If the fragments of the patella are approximated for three or four weeks without tension, bony union will be secured as in fractures elsewhere.

CLEFT PALATE.

DR. RICHARD H. HARTE exhibited this case as an illustration of what can be accomplished in unpromising cases if they are dealt with vigorously. The patient was a young man who had been operated upon unsuccessfully when he was five years of age. When first seen by Dr. Harte there was present a large cleft bounded partially by scar tissue resulting from the previous operation, and benefit from operative interference seemed doubtful. A trial was decided upon, a modification of Langenbeck's operation being employed. The various steps in the procedure were illustrated by blackboard drawings, two points made emphatic, being the avoidance of injury to the blood supply of the part and the working up of sufficiently large periosteal flaps to close the cleft without tension on the tissue. Failure will ensue in all cases where tension results from suturing, and its avoidance is of first importance in all cases. Dr. Harte has met with failure in the use of Ferguson's operation. There the operator has to

secure osteoplastic flaps, and this, in his experience, has led to very unsatisfactory results. In the case exhibited he was much handicapped during operation by the difficulty of using the mouth-gag, due to the absence of molar teeth in the patient, who was also difficult to etherize, as he constantly struggled. The operation was performed with the head of the patient lower than his body in order to allow the material collecting in his mouth to escape instead of being drawn into the air-passages. A large, pendulous uvula was removed. In these cases the surgeon seeks to attain two results: first, to close the communication between the nasal fossæ and the mouth; second, to improve the speech of the patient. Many people are under the impression that they can speak plainly as soon as the opening in the palate is closed. This is not the case, as speech follows partly as the result of education of the parts. Hence, there is a certain time in which it is most desirable to operate. This is about the time that the child is beginning to talk, as the ability to make sounds will then be more easily acquired. Operation on children under one year of age is followed by a large mortality. One child operated on by Dr. Harte spoke with great difficulty until it was put under the care of an elocutionist, who was also a throat specialist. As the result of this training the child now speaks very well.

DR. JAMES K. YOUNG approved the use of Roser's position in such cases, as it makes the operation easier and safer. He has seen sloughing occur in cases operated on by the method described, but in this instance the incisions were not carried back far enough to endanger the blood supply. Closure at the age mentioned is preferable to operating on very young children. In one case he operated at the age of one month, removing a large part of the maxillary bone, but hæmorrhage was severe. In double harelip and cleft palate it is best to operate between the ages of seven and fourteen, doing the plastic operation of the French.

DR. JAMES P. HUTCHINSON, who had seen Dr. Harte operate upon the case reported, said he had seen many cases operated upon, but in none had a better result been secured. The operative difficulties were here very great, because two surgeons had at different times trimmed away portions of the tissue surrounding the cleft. The difficulties were also increased by the fact that the patient took ether very badly. When the heads of the patients are not lowered during these operations, they take ether very

much better, and thus make the work of the surgeon much easier. The Roser position is therefore not approved.

DR. JOHN H. GIBBON spoke of the management of the premaxillary bone. In operating upon one case of double harelip with complete cleft of the palate, forming a Y-shape opening with the premaxillary projecting forward, he made an unsuccessful attempt to push back that bone, finally being obliged to remove it. When attempting to push back the bone, it was found that it twisted upon itself, as stated by some authorities, who speak of the teeth rotating in such a way that it is almost impossible for dentists afterwards to align them. The opening in the lip and palate can be better closed, in many cases, if the bone be removed. Dr. Gibbon has by this means secured good results in two cases.

DR. JOHN B. ROBERTS spoke of the frequency of unsatisfactory results as to speech in his own cases; and that he had recently been trying obturators with a flexible velum instead of operative closure of cleft palate. He asked whether the speech was good in Dr. Harte's case.

DR. HENRY R. WHARTON said that he employed practically the same operation as that described by Dr. Harte. The important point is to get free, thick flaps which can be approximated without tension. He uses silkworm-gut sutures, clamped by shot. Operation on children under three years is not recommended, between three and four being the best age. In one series of three cases operated upon recently perfect union was obtained in two. The third had a profuse mucopurulent discharge from the nasopharynx. This was washed out thoroughly before operation, but it persisted and infected the wound, causing every suture to cut out, leaving a wide gap in the tissues.

DR. HARTE, in closing, said that for suture material he uses the black, iron-dyed silkworm gut, which is allowed to remain in for eight to twelve days. The sutures are clamped by small shot, this method giving better approximation, and also enabling one to judge of the degree of tension employed. The nutrition of the flap is of the very greatest importance. If one goes indiscriminately into the roof of the mouth, sloughing is apt to occur. This result is sure to follow the sacrifice of the palatine vessels. A good working rule to follow is to keep close to the alveolar border and secure a wide flap. In doing this there is apt to be furious bleeding, but this can usually be controlled by temporary packing.

Dr. Harte considers it preferable to keep the head down during operation, as the air-passages are thus kept free of blood.

APPARATUS FOR DETERMINING ASYMMETRY OF THE LOWER EXTREMITIES.

DR. JAMES K. YOUNG said that the study of asymmetry in the lower limbs has attracted the attention of the surgeon for a quarter of a century. Prior to the excellent work of Morton in 1880, the subject was a menace to the medical profession in medicolegal cases, and Hunt has left us a record of the first trial for malpractice in which these facts collected by Morton were successfully used before a legal tribunal.

The excellent work of directors of physical training in our schools demonstrates the fact that asymmetry has not decreased, but that it is more frequently recognized to-day than formerly.

In order to determine the degree of unilateral development of the lower extremities, it is important to have some apparatus which will record any inequality quickly and certainly. It is also important to determine the degree of inclination of the pelvis both posteriorly and anteriorly. For this purpose he had constructed an apparatus consisting of a box with two movable platforms (Figs. 1 and 2). To the under surface of each is attached a vertical ratcheted bar worked by a horizontal pinion, the end of which projects beyond the box and is operated by a lever. By depressing the lever, the platform is elevated one-sixth of an inch for each tooth, and secured by a catch which may be instantly released at any point. The surface of the platform should be tested with a spirit-level before use.

The method of using the machine is as follows: The patient with clothing removed stands upon the platforms with one foot on each side of the median line. The anterior superior spines of the ilium are marked with a skin pencil, and a spirit-level is held in position while the foot-piece is gradually raised. If the longer limb be raised the deformity is increased, the spirit-level is made more uneven; but if the shorter limb be raised the deformity will disappear, and the spirit-level will indicate the equality of the limbs.

The restoration of the asymmetry can be readily recognized by observing the outline of the body, the spinal column, the cleft of the nates, and the iliofemoral folds. When the deformity is

FIG. 1.



FIG. 2.



Apparatus for determining asymmetry of the lower extremities.

corrected, the spinal column will be straight, the cleft of the nates will be continuous below the spinous processes, and the ileo-femoral folds will be level. The same method is employed to determine the inclination of the anterior superior spines in order to discover any anterior obliquity of the pelvis.

In making all measurements, old fractures, unilateral rhaehitic deformities, flat foot, etc., should be recorded, or eliminated from the test in order to make it more valuable.

This machine resembles that devised by Dr. T. S. Morton, but differs from it in several respects. In general form the top is the same, but the action is quicker, the release instantaneous, and the mechanism is a ratchet and pinion arrangement instead of strong vertical and horizontal screws. This machine is also more portable, and is less cumbersome in appearance.

THE TREATMENT OF FRACTURES OF THE CONDYLES OF THE HUMERUS.

DR. E. HOLLINGSWORTH SITER said that he had found that this injury occurs more often to children than to adults, as of forty-eight cases, of which he had taken memoranda from his case-books, nine were adults and the remainder were children.

All the fractures of which he spoke were about the condyles of the humerus. Some of them involved both condyles, some of them only one. He had found no favoritism as to the arm (whether right or left) or of the condyles (whether external or internal).

The method of treatment employed was what is usually called the Jones method, that is, without splints. The method briefly is, after reduction hang the arm by the wrist to the patient's neck at an acute angle. It can be hung by a piece of broad bandage or any apparatus or material thought best.

After the reduction a bandage was loosely applied from above the point of fracture down to and including the hand while the arm was acutely flexed. Over the injury any lotion or ointment may be applied before the bandage is adjusted.

The arm is then hung about the neck as described. In twenty-four or forty-eight hours the dressing is removed, the arm and hand washed with alcohol, the bandage is reapplied and rehung from the neck at a slightly less acute angle.

The patient should be seen certainly every other day, and the

angle changed, and made either more or less acute. At the end of three weeks the angle will be about a right angle.

The patient, if a child, is then allowed the free use of the arm, and is only to be seen every three or four days for the next two weeks. This is done more as a precaution than from necessity, as he had found that the patient has practically recovered in three weeks from the first dressing.

This method seems to be practically painless. There is no complaint when the angle is changed, and there are no adhesions to break up.

In adults it seems best to retain the dressings a week longer. He had frequently had children unconsciously remove their arms from the sling at the end of two weeks, use them, and only return them to the sling when told to do so by the parent or attendant.

He detailed the following cases selected at random from his memoranda.

CASE I.—J. M., aged nine years. History of having fallen off some steps. Found to have fracture of external condyle of left humerus.

Fracture was reduced. Dressed by Jones method. Dressing changed on second day. Angle lessened. No pain, some tenderness. Dressed every other day and angle changed. In two weeks angle was a right angle, and patient wished dressing removed permanently. At three weeks dressing removed, and there was found no deformity. A limit of motion just perceptible.

CASE II.—R. T., aged seven years. History of having fallen from a wagon. Both internal and external condyles of right humerus fractured.

Dressed with lead water and alcohol in Jones's position and angle changed every second day. Right angle reached in seventeen days.

Dressing removed on twenty-third day. No limit of extension or flexion.

CASE III.—C. L., aged twelve years. Fell from tree. Fractured both condyles of right humerus. Reduction was accomplished and the arm dressed. Angle changed in forty-eight hours, and thereafter every two days. Dressing removed and arm free on the twenty-second day. No loss of motion.

CASE IV.—F. M., aged ten years. History of falling on the ice. Fracture of external condyle of left humerus. Reduced and

dressed. Angle changed at intervals. Dressing removed on twenty-third day. Motion was unimpaired. This patient, eighteen months previously, fractured her external condyle of the right humerus by a fall from a wagon. This injury was kept on an internal angular splint for four weeks, and after repeated breaking of adhesions and manipulations her motion is only one-half.

CASE V.—M. S., aged twenty-four years. Fell from car. Fractured external condyle of right humerus. Reduced and dressed. Angle changed in forty-eight hours, and afterwards every second day. Dressing removed on the twenty-ninth day. Motion was normal.

CASE VI.—F. P., aged fourteen years. Fell from a hay-wagon. Condition was not diagnosed, but an anterior angular splint had been applied. He was seen one week after the injury, and at that time had some swelling, and motion in any direction was painful. He had fracture of both condyles of the right humerus. He was dressed in an angle as acute as possible in view of the pain occasioned by movement. This was approximately a right angle. He was dressed daily, and the angle made more acute at each dressing until he was at extreme flexion, which was accomplished in ten days. The hand was then gradually lowered until it was at a right angle again. On the twenty-fourth day the dressing was removed and the motion was normal.

The conclusions he drew from his cases were that, with this dressing applied and the patient seen at short intervals, fractures of the condyles of the humerus can be made to unite with practically no loss of motion. The change of position is so gradual that it causes no amount of distress. There is none of the painful, forced motion, there is no swinging of weights for months, with probable loss of one-half of the motion.

In the few cases he had treated with splints he had lost from a quarter to a half of the range of flexion and extension.

This dressing he had also found of great service in all injuries about the joint, except, of course, injuries to the olecranon.

DR. JOHN H. GIBBON reinforced the remarks of Dr. Siter regarding the use of the Jones position in the treatment of fractures about the elbow. For the past seven years he had used no other method. It has a great many advantages over the splint. He usually puts the arm between the shirts of the patient in order to keep it in position, and does not use rubber bands about the

wrist, as they are a source of discomfort. A child will get extension if the arm is thus treated in flexion, but one is never sure of obtaining perfect flexion if the arm is treated in extension. Nearly all the usual forcible movements of a child's arm tend to develop extension, such as throwing, climbing, etc., and but few tend to the development of flexion.

DR. WILLIAM J. TAYLOR indorsed all that had been said regarding the value of the Jones position. In the first case in which he employed that method he etherized the patient and produced a forced supination of the arm, and then placed it in flexion. The final result was perfect. He thinks it is wise, in a majority of cases, to etherize and forcibly supinate the forearm. It is a mistake to bind the arm to the side after it is put in position, as no displacement of the fragments can occur if the hand is kept to the neck.

DR. FRANCIS T. STEWART said there were two contraindications to the employment of the Jones position. One is great swelling of the parts, which mechanically interferes with flexion; the other is intense pain caused by the engagement of the ulnar nerve between the fragments of the fractured bone. In instances of the latter complication, it will be found that the patient is comfortable only when the arm is placed in extension.

DR. JOHN B. ROBERTS asked if the carrying function of the arm was preserved in the cases treated by the method under consideration. This is as important a question to consider as is that of ankylosis of the elbow.

DR. SITER, in closing, stated in reply to the question of Dr. Roberts that the carrying function in the arms of patients treated by the Jones method was normal.

VOLVULUS OF THE ENTIRE MESENTERY.

DR. A. D. WHITING reported the following two cases, which he was privileged to report through the courtesy of Dr. John B. Deaver. P. K., male, aged five years, was admitted to the Mary J. Drexel Home with a history of having been sick for five days, during which time he suffered from nausea and vomiting, with inability to expel flatus or fecal matter. When admitted to the Home, he was shocked, being very weak, with cold, clammy skin, and a rapid running pulse. The abdomen was markedly distended. Rectal enemas were retained, being recovered through a rectal

tube, not discolored. The patient did not react under treatment and died twelve hours after admission. Partial post-mortem examination revealed the following: Peritoneal effusion of a sero-sanguineous character was present in large amount. The omentum was small, irregular in shape, with small amount of fat. There were no peritoneal adhesions and no exudate. The stomach was normal in size, but was pushed upward by the distended small bowel. The duodenum was normal, but slightly congested. The remainder of the small bowel was markedly distended and of a dusky hue. The bowel was drawn out of the abdomen, when it was found that the root of the mesentery was so twisted on itself that it appeared like a cord. The turns of the mesentery were from right to left. The number of turns was not noted. By lifting the small bowel *en masse* the mesentery was readily untwisted.

The doctor who made the necropsy became infected during the examination; the infection being so virulent that, in spite of the most active treatment, he suffered from general septicæmia, from which it was feared he would not recover. This unfortunate termination was, however, happily replaced by a perfect recovery after a tedious illness.

The second case was C. B., male, aged thirty-four years. He had had an attack of acute appendicitis in October, 1902, for which he was operated in the German Hospital. The appendix was gangrenous, the intestine was injected, inflated, and covered with lymph. There was a local collection of pus at the base of the appendix. The appendix was removed, the abdominal cavity was cleansed as thoroughly as possible, and four pieces of gauze were inserted for drainage, no attempt being made to close the wound. A faecal fistula developed, which, however, closed without operation before the patient left the hospital. After his discharge, he suffered from intermittent pains in the right iliac fossa and along the line of the cicatrix. He was examined on May 22, 1903, at which time he complained of constipation, loss of appetite, and dull pain in the right iliac fossa. The scar was firm, the abdomen soft, with no points of tenderness. At 5 A.M., May 29, 1903, while the patient was walking upstairs, he was suddenly doubled up with most severe pain at the site of the cicatrix. He was nauseated, but did not vomit. He had had a bowel movement in the morning, but from the time of the onset of the violent

pain until after a subsequent operation he did not pass either flatus or faecal matter. He was admitted to the German Hospital about 8 P.M. of the same day. He was in great distress, with severe cramp-like pains over the entire abdomen, but most marked in the right iliac fossa. The abdomen, which was slightly distended, was very tender. The recti were rigid. There was a large hernial opening at the site of the cicatrix which had not been present one week before. The temperature was $97\frac{2}{5}^{\circ}$ F.; pulse, 58, and respirations, 26. A diagnosis of acute intestinal obstruction was made, probably due to adhesions, and immediate operation advised, to which consent was given.

Operation at 9 P.M., about four hours after the onset of pain. Under ether anaesthesia, an incision was made round the cicatrix. In dissecting the caecum from the anterior abdominal wall, to which it was firmly adherent, it was unintentionally opened, but immediately closed with two rows of Lembert sutures. Inspection showed the intestine near the ileocaecal junction to be bound together by dense adhesions, some of which were as large as the little finger, with partial obstruction. With the exception of the last portion of the ileum and the duodenum, the entire small intestine was partially collapsed, lustreless, and of a dusky red color. This portion of the bowel had a doughy feel. All adhesions were separated, the denuded surfaces being covered with cargile. The small bowel was then drawn out of the wound in a search for the cause of the peculiar condition of the gut. It was discovered that the entire mesentery was twisted upon itself, about a three-quarter turn, from left to right. The bowel was lifted up in a towel and the entire mass turned from right to left. This relieved the twist in the mesentery and returned it to its normal position. The circulation of the bowel was immediately re-established, the normal color and lustre rapidly returning. The separate layers of the abdominal wall were dissected out and the wound was closed with tier sutures of silk. Five hundred cubic centimetres of salt solution were injected into the rectum before the patient left the operating table. He reacted well. Flatus was passed through a rectal tube six hours after the operation, and voluntarily six hours later. The bowels moved freely on the second day. With the exception of slight infection of the lower part of the wound, the patient had no unfavorable symptoms, and was discharged from the hospital on the seventeenth day after operation.

These two cases demonstrate the value of early operative interference in cases of intestinal obstruction. The first case was brought to the surgeon when the patient was practically moribund, and of course no relief could be afforded. It is probable that the perfect recovery made by the second patient was largely due to the short interval which elapsed between the onset of the acute symptoms and the time of operation, about four hours. The second case also shows the value of thorough inspection of the abdomen in cases of obstruction.

In a very interesting article published in the *American Journal of the Medical Sciences* for May, 1903, Dr. George Tully Vaughan cites twenty-one cases of volvulus of the entire mesentery. Seventeen of these were operated with four recoveries, a mortality of about 76 per cent. This mortality, as stated by Dr. Vaughan, is due to three causes: First, the serious nature of "a condition which strangulates almost the entire small intestine, injures the sympathetic plexus, and perhaps produces a rapidly fatal toxæmia." Second, delay in operating, and, third, "the difficulty in recognizing the true conditions in order to act intelligently, four of the operators cited confessing their inability to do so after opening the abdomen. The patients died without relief, the true condition being at last discovered at the necropsy."

DR. JOHN B. ROBERTS gave brief notes of a case upon which he had operated about a year ago at the Polyclinic Hospital. The man was in an extremely bad condition, with marked abdominal distention and other signs of intestinal obstruction. When the abdomen was opened, there was some difficulty in determining the exact nature of the lesion. It was finally found that the entire mass of small intestines was twisted on the mesentery. The obstruction was relieved, but the patient soon afterwards died.